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(54) **HIGH LINEAR DENSITY TUNNEL
JUNCTION FLUX GUIDE READ HEAD
WITH IN-STACK LONGITUDINAL BIAS
STACK (LBS)**

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(51) **Int. Cl.⁷ G11B 5/39**(52) **U.S. Cl. 360/324.2; 360/321; 29/603.14****(57) ABSTRACT****Correspondence Address:****Ron Feece****INTERNATIONAL BUSINESS MACHINES
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Several embodiments of a sense current perpendicular to the planes of the sensor (CPP) and flux guide type of read head has a gap between first and second shield layers at an air bearing surface (ABS) where the flux guide is located which is less than a gap between the first and second shield layers at a recessed location where the sensor is located. This reduced gap increases the linear bit density capability of the read head. A longitudinal bias stack (LBS) is located in the sensor stack. Several unique methods of construction are described for forming the magnetic head assemblies.

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